signal or graphic computer display as a passive or dynamic trigger of the masking effect. The brightness level of the incoming signal is analyzed with, for example, dark areas detected as zero smoothing factors and light areas detected as full smoothing factors. Adjustment of light and dark factors areas may be according to a predetermined threshold (and thus adjustable or by continuous function), thus giving rise to areas of semi-transparency triggered by density of the input signal.

With either method of shape definition, the final display is the same. The horizontal and vertical elements of the raster image are placed subordinate to the pattern held by two dimensions of the smoothing factors lookup table. Where the lookup table element is zero, no active image passes to the projector. Where the lookup table element contains a full brightness smoothing factor, the transfer of the image is unimpeded. Where intermediate values are stored, proportionately attenuated portions of the underlying image are passed to the projector. With the present invention, adjacent irregular, non-rectangular images may be blended together forming seamless, continuous display images on curved, spherical, geometrically dimensional, and irregular surfaces.

While various embodiments of the invention have been particularly shown, it will be understood by those skilled in the art that various changes in form and detail may be made without departing from the scope and spirit of the present invention.

What is claimed is:

1. A system for adjusting video signals representing an array of raster images to compensate for projection defects comprising:

a plurality of projectors to display the array of raster images, each raster image including red, green and blue color components, to form a composite projected image;

a three dimensional array of smoothing factors, each smoothing factor being associated with a portion of the composite projected image; and

means for applying the smoothing factors to the video signals to remove the projection defects resulting from display of the array of raster images, wherein the three dimensional array of smoothing factors comprises a smoothing factor for each portion of the composite projected image for each of red, green, and blue color signals of the video signals, and wherein each smoothing factor is applied to a selected portion of the composite projected image by multiplying the smoothing factor with video signal values for the selected portion.

2. The system of claim **1**, wherein the applying means comprises means for edge blending of adjacent overlapping raster images.

3. The system of claim **1**, wherein the applying means comprises means for matching color outputs of the projectors displaying the array of raster images.

4. The system of claim **1**, wherein the applying means comprises means for correcting occurrences of improper projector shading for the projectors by applying the smoothing factors.

5. The system of claim **1**, wherein the applying means comprises means for correcting occurrences of horizontal, vertical, or geometric color purity shifts for the projectors by adjusting the brightness of the composite projected image according to the smoothing factors.

6. The system of claim **1**, wherein the applying means comprises means for correcting occurrences of optical vignetting for the projectors by adjusting the brightness of the composite projected image according to the smoothing factors.

7. The system of claim **1**, wherein the applying means comprises means for applying the smoothing factors non-linearly to adjust selected portions of the composite projected image which are brighter to be diminished more strongly than selected portions of the composite projected image which are darker, thereby adjusting the value of the smoothing factors based on a variable intensity of the video signals for the selected portions.

8. The system of claim **1**, wherein the applying means comprises means for automatically generating the smoothing factors based on dynamically monitoring output of the projectors.

9. The system of claim **1**, wherein the applying means comprises means for automatically generating the smoothing factors at specific times determined according to a regular time base of multi-source video sources providing the video signals.

10. The system of claim **1**, wherein the applying means comprises means for determining edges of the composite projected image when the composite projected image is not square or rectangular in shape and for displaying the composite projected image within the determined edges.

11. A system for adjusting video signals representing an array of raster images to compensate for projection defects comprising:

a plurality of projectors to display the array of raster images, each raster image including red, green and blue color components, to form a composite projected image;

means for storing a three dimensional array of smoothing factors, each smoothing factor being associated with a portion of the composite projected image; and

means for applying the smoothing factors to the video signals to remove the projection defects resulting from display of the array of raster images, wherein the applying means comprises:

a brightness circuit to adjust the brightness of the video signals;

a mixer coupled to the brightness circuit; and

a smoothing factor multiplier coupled to the mixer and the storing means to apply the smoothing factors to video signals used for generating the composite projected image.

12. The system of claim **11**, further comprising a gamma circuit coupled to the mixer to adjust the gamma of the video signals.

13. The system of claim **12**, further comprising a contrast circuit coupled to the mixer to adjust the contrast of the video signals.

14. A method of matching arrayed projectors to produce a composite raster image having consistent red, green, and blue color values, comprising the steps of:

(a) focusing at least one light sensor on the projection screen;

(b) displaying a selected one of the color values by a selected one of the projectors on the projection screen;

(c) displaying a pattern of the selected color value by the selected projector on the projection screen;

(d) collecting measurement data from the at least one light sensor sensing the display by the selected projector of the pattern;

(e) repeating steps (b)–(d) for each of the color values;

(f) repeating steps (b)–(e) for each of the projectors;

(g) generating a behavior profile for each of the projectors and for all projectors combined from the collected measurement data; and